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The Formicidæ (Hym.) of the Armstrong College Expedition to the Siwa Oasis. By HORACE DONISTHORPE, F.Z.S., F.R.E.S., &c., Department of Entomology, British Museum (Natural History).

THE following paper deals with some twenty-six forms of ants taken by Mr. Omer-Cooper in Egypt, chiefly from the Siwa oasis.

As might be expected, the majority of these insects which have already been described are known to inhabit deserts and oasis.

Of these twenty-six different forms, two species and one subspecies are new to science—these I have described. I give the recorded distribution to all the known ants in this list.

Subfamily *CERAPACHYINÆ* Forel.

Tribe *CERAPACHYINI* Forel.

1. *Lioponera cooperi* Donisthorpe, Ann. & Mag. Nat. Hist. (n. s. 11) iii. p. 255 (1939).

Two ♂♂. Egypt : Siwa, 36. vi. 35 ; Maragi, 26. viii. 35 (*J. Omer-Cooper*).

Type ♂ and paratype ♂ in B.M.

Subfamily *PONERINÆ* Lepeletier.

Tribe *PONERINI* Forel.

2. *Euponera* (*Brachyponera*) *sorghi* Roger ? Berlin Ent. Zeits. vii. p. 169 (1863), ♀.

Three ♂♂. Egypt : 2 Siwa, 30. vi. 35 ; 1 Maragi, 26. viii. 35 (*J. Omer-Cooper*).

Recorded distribution : Sudan.

Subfamily *MYRMICINÆ* Lepeletier.

Tribe *PHEIDOLINI* Emery.

3. *Messor barbarus* L., subsp. *ægyptiaca* Emery, Ann. Mus. Stor. Nat. Genova, xii. p. 57 (1878).

Six ♀♀, nine ♂♂. Egypt : Siwa, vii. 35 ; Maragi, vii. 35 (*J. Omer-Cooper*).

Recorded distribution : N. Africa, Egypt, deserts.

4. *Pheidole* (*Pheidole*) *pallidula* Nyl., var. *tristis* Forel, Ann. Soc. Ent. Belg. li. p. 204 (1907).

Three ♀♀, numerous ♂♂. Egypt : Siwa, viii. 35 (*J. Omer-Cooper*).

Recorded distribution : Kairouan, Tunis (the ' Genera Insectorum ' incorrectly gives Algeria).

5. *Pheidole* (*Pheidole*) *pallidula* Nyl., var. *reticeps* Forel.

Three ♀♀, numerous ♂♂. Egypt : Siwa, Bachrein, iv., vi., viii. (*J. Omer-Cooper*).

Recorded distribution : Cairo, Sahara, Tunis.

6. *Pheidole* (*Pheidole*).

One hundred winged ♀♀. Egypt: Siwa, 10. v. 35 (*J. Omer-Cooper*). Evidently a marriage flight.

Tribe CARDIOCONDYLINI Emery.

7. *Cardiocondyla emeryi* Forel, subsp. *mahdii* Karawajew, Rev. Russe Ent. xi. p. 8 (1911).

Two ♂♂, one winged ♀, eighteen ♀♀. Egypt: ♂, Siwa, 30. vi. 35; ♀, 7. vii. 35; ♀♀, Khamissa, vi. 35; Siwa, vii. 35 (*J. Omer-Cooper*).

Recorded distribution: Khartum.

8. *Cardiocondyla nuda* Mayr, var. *mauritanica* Forel, Ann. Soc. Ent. Belg. xxxiv. p. 75 (1890).

Two dealated ♀♀, forty-two ♀♀. Egypt: Siwa, vi., vii., viii. 35 (*J. Omer-Cooper*).

Recorded distribution: North Africa, Cyprus.

Tribe CREMATOGASTERINI Forel.

9. *Crematogaster* (*Acrocelia*) *auberti* Emery, var. *oasium* Santschi, Bull. Soc. Hist. Nat. Africa Nord, iii. p. 84 (1911).

Twenty-two ♀♀. Egypt: Siwa, Khamissa, Bahrein, vi., vii., viii. 35 (*J. Omer-Cooper*).

Recorded distribution: Tunis, Kairouan.

Tribe SOLENOPSIDINI Forel.

10. *Monomorium* (*Xeromyrmex*) *bicolor* Emery, Ann. Mus. Stor. Nat. Genova, ix. p. 368 (1877).

Five ♂♂, twenty ♀♀. Egypt: Siwa, Tagyertie, vi., vii., viii. 35 (*J. Omer-Cooper*).

Recorded distribution: Abyssinia; widely distributed in Africa.

11. *Monomorium* (*Xeromyrmex*) *salomonis* L. Syst. Nat. Ed. 10, i. p. 580 (1758).

Two winged ♀♀, forty-five ♀♀. Egypt: Siwa (♀♀, 21. vii. 35; ♀♀, vi., vii., ix. 35) (*J. Omer-Cooper*).

Recorded distribution: Barbary, Syria, Central Asia, Caucasus.

12. *Monomorium* (*Xeromyrmex*) *salomonis* L., subsp. *subopaca* Smith, Cat. Hym. Brit. Mus. vi. p. 127 (1858).

Three winged ♀♀, twelve ♂♂. Egypt: Siwa (♀♀, 30. vi. 35, 18. vii. 35; ♂♂, vi., vii. 35) (*J. Omer-Cooper*).

Recorded distribution: Madeira, Canaries, Spain, Sardinia, Sicily, Greece, Marocco, Algeria, Rhodesia.

13. *Monomorium* (*Parholcomyrme*) *gracillimum* Smith, Journ. Proc. Linn. Soc. Lond. Zool. vi. p. 34 (1861).

Forty-six ♂♂. Egypt: Gara, vii. 35 (*J. Omer-Cooper*).

Recorded distribution: Syria, Barbary, Arabia, India, Central Asia; spread by commerce.

14. *Monomorium* (*Lampromyrme*) *atomus* Forel, subsp. *cooperi*, subsp. n.

♂. Unicolorous bright yellow, eyes black, teeth of mandibles red, very shining, some sparse erect hairs chiefly on gaster, pubescence practically nil, under a high power a few small, shallow punctures can be seen.

Head oblong, slightly narrower in front than behind, broadest just before posterior angles which are rounded, posterior border sinuate; *mandibles* with last two teeth sharp and prominent, the last being sharper and longer; *clypeus* convex, bicarinate; *eyes* moderate, rather flat, oblong, situated in front of middle of sides of head; *antennæ* 11-jointed, the *scapes* extend a little beyond the posterior fourth of the head. *Thorax* distinctly contracted at *meso-epinotal* suture; *petiole* very slightly higher and not so globose, but as broad as *post-petiole*.

Long. 1.2–1.3 mm.

♀. Posterior part of head, thorax and petiole yellowish brown, anterior part of head, antennæ, legs and post-petiole paler, gaster pale yellow, slightly darker at apex, teeth of mandibles and eyes black, whole insect very shining. Pubescence, hairs and puncturation less sparse and more distinct than in ♂.

Head more massive and not so long in proportion to its width as in ♂, *mandibles* more robust; *antennæ* as in ♂, but more robust, and *scape* not reaching as far back. *Thorax* narrow, rounded at sides from apex to base; *epinotum* rounded, *declivity* longer than the *dorsum*. *Petiole* and *post-petiole* much as in ♂, but more massive; *gaster* long, rather flat above, slightly convex beneath.

Fore-wing, discoidal cell present, one long closed cubital cell, and radial cell open, pterostigma and veins pale yellow.

Long. 4.4 mm.

♂. Black, mandibles, funiculi of antennæ and tarsi dirty pale yellow, scape, femora and tibiæ darker, smooth and shining, head duller, furnished with sparse, short scattered hairs, and scanty pubescence. *Head* broader than long, finely coriaceously punctured, posterior angles rounded; *mandibles* short, narrow, dentate; *clypeus* convex; *frontal area* impressed, smooth, *frontal furrow* short, but rather deep; *ocelli* moderate; *eyes* large, prominent, but not reaching base of mandibles; *antennæ* 13-jointed; *scape* shorter than the two first joints of the *funiculus*, gradually and slightly thickened towards apex. *Thorax* narrow; *mesonotum* convex, high; *scutellum* somewhat flat above; *metanotum* narrow, slightly extending above *epinotum*, which is convex and rounded; *petiole* higher than *post-petiole*, which is short and globose. *Fore-wing* as in ♀, but with *discoidal cell* wanting, more iridescent, and *pterostigma* and *veins* much paler.

Long. 2.5 mm.

♀ type and paratypes, and ♂ and ♀ types in Brit. Mus.

One ♂, one winged ♀, twelve ♂♂. Egypt: Siwa (♂, 30. vi. 35; winged ♀, 14. vii. 35; ♂♂, vi., vii., viii. 35) (*J. Omer-Cooper*).

15. *Solenopsis*.

Over one hundred and seventy ♂♂. Egypt: Siwa, 21. viii. 35 (*J. Omer-Cooper*).

Evidently a marriage flight.

Tribe TETRAMORIINI Emery.

16. *Tetramorium minutum*, sp. n.

♀. Brownish red, gaster black, under sides of thorax, epinotum, petiole, mandibles, antennæ and legs yellow. Body furnished with scattered, semi-erect blunt hairs.

Head longitudinally striate; *mandibles* large, finely striate and punctate, masticatory border with two large sharp apical teeth, and four smaller ones; *clypeus* round, convex, with a narrow raised central *carina*, and two lateral ones continued along the head; *frontal carinæ* continuing nearly to posterior border of head, forming

a semi-scribe for insertion of scapes. *Thorax*, *mesonotum* and *scutellum* longitudinally striate; *epinotum* armed with two short, broad but sharply pointed projecting teeth continued in raised ridge posteriorly, space between concave, smooth; *episterna* armed with two finer sharp teeth. *Petiole* with not very short *peduncle* and sub-cuboidal *node*, somewhat flat above; *post-petiole* transverse with rounded sides, broader than *petiole*; *gaster* short, oval, smooth and shining, with scattered shallow punctures. *Fore-wing*, one *discoidal cell*, one closed *cubital cell*, *radial cell* closed, *pterostigma* and *veins* very pale yellow.

Long. 2.2 mm.

Type in Brit. Mus.

One winged ♀. Egypt: Siwa, 17. vii. 35 (*J. Omer-Cooper*).

Possibly this small species has parasitic habits.

Subfamily FORMICINÆ Lepeletier.

Tribe PLAGIOLEPIDINI Forel.

17. *Plagiolepis pallescens* Forel, subsp. *maura* Santschi, Bull. Soc. Vaud. Sci. Nat. liii. p. 169 (1920).

One ♂, one deâlated ♀, 75 ♀♀. Egypt: ♂ and ♀, Kamissa, 22. vi. 35; ♀♀, Kamissa, Siwa, Gara, vi., vii., viii. 35 (*J. Omer-Cooper*).

Recorded distribution: Tunis to Morocco.

18. *Plagiolepis pallescens* Forel, subsp. *maura* Santschi, var. *sordida* Santschi, Bull. Soc. Vaud. Sci. Nat. liii. p. 170 (1920).

Seventeen ♀♀. Egypt: Siwa, Zeitoun, Kamissa, vi., vii., viii. (*J. Omer-Cooper*).

Recorded distribution: Tunis to Morocco.

19. *Acantholepis frauenfeldi* Mayr, var. *variabilis* Santschi, Bull. Soc. Hist. Nat. Africa Nord, viii. pp. 43, 46 (1917).

Three ♀♀. Egypt: Siwa, 21. viii. 35; Khamissa, 27. viii. 35 (*J. Omer-Cooper*).

Recorded distribution: Tunis, Cyrenaica.

20. *Acantholepis frauenfeldi* Mayr., subsp. *saharensis* Santschi, Bull. Soc. Hist. Nat. Africa Nord, viii. pp. 44, 47 (1917).

Six ♂♂. Egypt: Siwa, vi., vii., viii. 35 (*J. Omer-Cooper*).

Recorded distribution: Algeria, Touggourt.

Tribe CAMPONOTINI Forel.

21. *Camponotus* (*Tanæmyrmex*) *maculatus* F., subsp. *ægyptiaca* Emery.

Twenty-eight ♂♂, one deãlated ♀, numerous ♀♀ and ♂♂. Egypt: ♀, Siwa, 28. viii. 35; ♂♂, Siwa, vi., vii., viii. 35, ♀♀ and ♂♂, Siwa, Gara, Jajub, Khamissa, vi., vii., viii. 35 (*J. Omer-Cooper*).

Recorded distribution: Egypt and the Basin of the Nile.

22. *Campanotus* (*Tanæmyrmex*) *compressus* F., subsp. *thoracica* F., Syst. Piez. p. 397 (1804).

Twenty-two ♂♂, one deãlated ♀, thirty-three ♀♀ and ♂♂. Egypt: Siwa, ♀, 28. viii. 35; ♂♂, vii., viii. 35; ♀♀ and ♂♂, vii., viii., ix. 35 (*J. Omer-Cooper*).

Recorded distribution: Algeria and Tunis; inhabits oases in sandy deserts.

23. *Camponotus* (*Orthonotomyrmex*) *sericeus* F., Suppl. Ent. Syst. p. 279 (1798).

Two ♂♂, two deãlated ♀♀, seven winged ♀♀, thirty-four ♂♂. Egypt: deãlated ♀♀, Gara, 4. vii. 35; winged ♀♀, Siwa, 30. vi. 35, 6. viii. 35; ♂♂, Siwa, vii., viii., 35; ♂♂, Siwa, Koreishad, vi., vii., viii. 35 (*J. Omer-Cooper*).

Tribe LASIINI Ashmead.

24. *Paratrechina* (*Nylanderia*) *jægerskjöldi* Mayr., var. *borcardi* Santschi, Ann. Soc. Ent. France, lxxvii. p. 533 (1908).

Thirty-three ♂♂, nine winged ♀♀, twenty-three ♂♂. Egypt: Siwa, Maragi, Kamissa, Tenterad, vi., vii., viii. 35 (*J. Omer-Cooper*).

Recorded distribution: Egypt, Syria, Cyprus.

Tribe FORMICINI Forel.

25. *Cataglyphis* (*Cataglyphis*) *albicans* Roger, Berlin Ent. Zeitschr. iii. p. 235 (1859).

One ♀. Egypt : Siwa, 30. vi. 35 (*J. Omer-Cooper*).

Recorded distribution : Tunis, Algeria.

26. *Cataglyphis* (*Cataglyphis*) *bicolor* F., Ent. Syst. ii. p. 35 (1793).

One ♀. Egypt : Koreishid (*J. Omer-Cooper*).

Recorded distribution : Africa north, Syria.

27. *Cataglyphis* (*Machaeromyrma*) *bombycina* Roger, Berlin, Ent. Zeitschr. iii. p. 232 (1859).

Twenty 4 4, sixty-eight ♂♂. Egypt : Siwa, vii., viii. (*J. Omer-Cooper*).

Some of the soldiers are very large with well-developed jaws. This is the only species of *Cataglyphis* which possesses a soldier form.

Recorded distribution : inhabits deserts in Egypt and the north of Africa in general.